

Defender CCR Detailed Functionality Checklist

(After having completed the full assembly checklist)

Name: _____ Date: _____

1. **Mushroom Valve Check**
2. **Check Remaining Scrubber Duration**
 - A. Re-pack scrubber if needed
 - B. Reset stack timer to appropriate time
3. **Install Analyzed + Labeled Gas Cylinders**
4. **Negative Pressure Test (hold for 1 minute minimum)**
 - A. Open BOV
 - B. Inhale from BOV in CC mode, exhaling through nose until counterlungs are fully collapsed
 - C. Close BOV
 - D. Allow to sit for one minute (minimum); watch for signs of leaks.
5. **Positive Pressure Test (hold for 1 minute minimum)**
 - A. Close OPV
 - B. Fill loop fully until OPV vents
 - C. Allow to sit for one minute, watch for signs of leaks
 - D. Open BOV to release pressure, close BOV
6. **Diluent & Oxygen System Leak Test (hold for 30 seconds minimum)**
 - A. Open diluent & oxygen cylinders slowly allowing hoses to pressurize, close valves
 - B. Watch pressure gauges for pressure lost for a minimum of 30 sec
 - C. Open diluent & oxygen cylinders
7. **Turn On SG-1 & Secondary**
 - A. Change to MANUAL Setpoint
8. **Flush Loop with Oxygen (3 times)**
 - A. Close BOV
 - B. Fill loop with oxygen
 - C. Evacuate loop fully (if equipped, ensure ADV is isolated)
 - D. Repeat steps B & C, 1 more time
 - E. Fill loop with oxygen
 - F. Quickly open and close the BOV to bring loop to ambient pressure
9. **Check Calibration**
 - A. Check for appropriate PO₂ (considering altitude)
 - B. If needed, perform calibration according to user manual
 - C. Check mV readings (acceptable: 40mV or greater in 100% oxygen at sea level)
10. **Check ADV, BOV, MAV and Power Inflator**
 - A. Inhale from BOV (being cautious if using a hypoxic diluent)
 - B. Open BOV, inhale from loop until ADV engages (if equipped), dropping loop PO₂
 - C. BCD Inflation + deflation mechanisms & BCD air holding
 - D. Confirm Dil & O₂ MAV function

11. ○ Check Solenoid & Wrist Display Battery

- A. Change SG-1 to LOW setpoint
- B. Solenoid fires, O2 injection verified
- C. Change SG-1 to MANUAL setpoint
- D. Check battery status for both SG-1 & Secondary
- E. If less than 3.7v, recharge before continuing

12. ○ Pre-Breathe (5 minutes)

- A. Change SG-1 to LOW setpoint
- B. **Block nose** and begin breathing from the Defender CCR (in a safe location/position)
- C. Observe setpoint maintenance and HUD functions
- D. Pay close attention to how you feel as well as how the CCR is functioning for a full 5 min

If Diving Immediately:

Continue with “Pre-Dive Checks”

If NOT Diving Immediately:

Close O2 + diluent cylinder valves, drain hoses, turn off electronics, and secure unit

Pre-Dive Checks:

13. ○ Proper weighting?

14. ○ HUD and wrist displays on?

15. ○ Tank valves open?

16. ○ Verify setpoint and loop contents

17. ○ Don the Defender CCR

18. ○ CCR Pre-Jump Drill

- 1. Begin Breathing Unit
- 2. Check: ADV, BOV, Oxy MAV, Dil MAV; Wing & Drysuit Inflator
- 3. Check SPGs: Oxy, Dil; OC Bailout
- 4. Observe Setpoint Maintained
- 5. Enter when ready
- 6. Complete S-Drill
- 7. Remember CCR Diving Rule #1: **Always Know Your PO2!**

